wherein when the pressure of the working oil detected by the drive oil pressure detecting means is equal to or higher than a predetermined pressure, the oil pressure control means feeds current of a predetermined value to the electromagnetic relief valve.

REMARKS

By the present amendment, claims 1-5 are pending in the application. Claims 6-36 have been withdrawn from consideration in response to a restriction requirement. Claims 1 and 2 have been amended to correct issues relating to antecedents and consistency of terminology. Claims 2 and 4, having been determined by the Examiner to recite allowable subject matter, have been amended to independent form. No new matter has been added with this amendment.

Claim Rejections Under 35 U.S.C. §112

The Examiner has rejected claims 1-5 under 35 U.S.C. §112, first paragraph as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention; in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention; and/or because the best mode contemplated by the inventor has not been disclosed. More specifically, citing claim 1, lines 45-54 and the specification page 52, lines 5-8 and page 53, line 11 to page 54, line 3, the Examiner contends:

> the above claim and discussion indicates that the pressure difference between the pressure supplied by the pump and the pressure of the working oil is a maximum of 20 kg/cm^2. Since the main relief valve 45 is moved to an open position by the pressure supplied by the pump and moved toward a closed position by pressure in pilot line 67 and by the spring; to achieve this pressure difference, the pressure in the pilot line plus a pressure corresponding to the spring must be equal to the working pressure plus the 20 kg/cm^2. Since the pressure in the pilot line 67 is only a function of the working pressure, the current sent to the electromagnetic relief valve 46 is only a function of the working pressure, and therefore it is unclear why the supply pressure is sent

> to the control unit 23B, and how the supply pressure is used to generate the current for the electromagnetic relief valve 46.

Applicants respectfully traverse this rejection.

As a preliminary matter, Applicants respectfully submit that the Examiner has incorrectly interpreted a disclosure in the specification. Specifically, the Examiner's statement that "the pressure in the pilot line 67 is only a function of the working pressure" is not supported by the Applicants' disclosure. On page 55, lines 7-12, the specification teaches,

> the oil pressure control circuit 23B determines the current to be fed to the electromagnetic relief valve 46 so that the pressure of the working oil received from the hydraulic pump 42 is higher than the pressure of the working oil for driving and rotating the hydraulic motor 43 by 20 kg/cm^2 at maximum...

As is further disclosed in the specification on page 53, lines 16-19, the pressure of the pilot oil in the pilot oil passage 67 is set by the electromagnetic relief valve 46 and is thus related to the current supplied to the electromagnetic relief valve 46. As indicated above, the current (electrical signal 36 in Fig. 1) is determined by the pressure of the working oil received from the hydraulic pump 42 (as is indicated in Fig. 1, this is the electrical signal 35 communicated to the controller 23B), the pressure of the working oil for driving and rotating the hydraulic motor 42 (provided to the controller 23B by the two electrical signals 33 and 34, see Fig. 1), and the predetermined pressure (see claim 1, page 128, line 8), which is a maximum of 20 kg/cm^2 (page 52, lines 5-8). The pressure in the pilot line 67 is thus not merely a function of the working pressure (the pressure measured at pressure gages 47 and 48, see Fig. 1), but also a function of the supply pressure (the pressure measured at pressure gage 49) and the predetermined pressure offset (a maximum of 20 kg/cm^2).

With respect to the Examiner's contention that it is not clear why the supply pressure is sent to the control unit 23B, the specification states at page 3, lines 10-12, that one objective of the present invention is "to drive a hydraulic motor without wastefully consuming the drive horsepower of a hydraulic pump." In other words, one objective of the present invention is to provide a hydraulic drive apparatus in which there is a correspondence between the pressure of oil supplied from a hydraulic pump with the load pressure of a hydraulic motor.

Accordingly, the specification teaches a control unit 23B that operates to control the pressure of oil supplied from hydraulic pump to be higher than the pressure required to drive a hydraulic motor by a predetermined amount (not to exceed 20 kg/cm^2) (page 55, lines 7-12) and claim 1 recites a corresponding limitation.

With respect to the Examiner's second contention that it is not clear how the supply pressure is used to generate the current for the electromagnetic relief valve 46, reference is made to the specification at page 55, lines 7-12 and to Fig. 1, which shows electrical input signals 33, 34 and 35 to controller 23B, and output electrical signal 36. From this disclosure, one skilled in the art having Fig. 1 and the cited disclosure before him would understand that the current supplied to the electromagnetic relief valve 46 (signal 36) is related to the pressure of the supply pressure (the pressure measured at pressure gage 49 and transmitted to the controller 23B by signal 35), the pressure at the hydraulic motor 43 (measured by pressure gages 47 and 48 and transmitted to the controller 23B as electrical signals 33 and 34) and the predetermined pressure. The artisan would further understand that constants used by the controller 23B to calculate the current are a function of the physical characteristics of the system (e.g. line losses in and dynamic response characteristics of the system components). Still further, the artisan would recognize that the constants mathematically relating the current and the system pressures would be determined experimentally using the actual system hardware.

In view of the foregoing, Applicants respectfully submit that claims 1-5 are in full compliance with 35 U.S.C. §112, first paragraph and request that the rejection of claims 1-5 under section 112 first paragraph be withdrawn.

The Examiner has rejected claims 1-5 under 35 U.S.C. § 112 , second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regards as the invention. The Examiner has set forth several grounds of rejection, each of which is addressed in seriatim below. Applicants respectfully traverse this rejection in view of the foregoing amendment.

Regarding claim 1, at line 5, the Examiner contends that the phrase "a drive rotary member" is confusing, as it is the same drive rotary member introduced in the preamble of claim 1. Accordingly, claim 1 has been amended to recite "the drive rotary member".

Regarding claim 2, at line 9, the Examiner contends that the term "the input operation position signal" does not agree with the term "an operation position signal" introduced at line 17 of claim 1. In accordance with the Examiner's suggestion, the claim has been amended to recite "the operation position signal" consistent with claim 1.

In view of the foregoing, Applicants respectfully submit that claims 1 and 2 are in full compliance with 35 U.S.C. §112, second paragraph and request that the rejection of claims 1-5 under section 112 second paragraph be withdrawn.

Claim Rejections Under 35 U.S.C. §103

The Examiner has rejected claims 1 and 3 under 35 U.S.C. § 103 as being unpatentable over U.S. Patent No. 3,621,762 (Ikebe *et al.*) in view of U.S. Patent No. 4,468,173 (Dantlgraber). The Examiner states that Ikebe *et al.* discloses all of the elements of claim 1 of the present invention with the exception of disclosing the following:

> a main relief valve for regulating a pressure of the working oil supplied from the supplying means to be equal to or lower than a set pressure,
>
> an electromagnetic relief valve for varying the set pressure of the main relief valve, and
>
> oil pressure control means for receiving the drive oil pressure signal from the drive oil pressure detecting means and outputting a current to the electromagnetic relief valve to vary the set pressure of the main relief valve, thereby controlling the pressure of the oil supplied by the supplying means to be higher, by a predetermined pressure, than the pressure of the working oil of the rotary member.

The Examiner, in particular, contends that numerical control unit 401 corresponds to the operation position inputting means of the present invention. The Examiner further contends that the pulse train converter 402 corresponds to the operation position signal

outputting means of the present invention, and that the pressure sensor (either pressure detector 116 or 117) corresponds to the supplying oil pressure detect means of the present invention.

Further, the Examiner contends that Dantlgraber teaches a supplying means supplying pressurized working oil to a hydraulic motor. Still further, the Examiner contends that the supplying means of Dantlgraber includes:

> a variable displacement pump,
> a main relief valve (130) for regulating a pressure of the working oil supplied from the pump to be equal or lower than a set pressure,
> an electromagnetic relief valve (20) for varying the set pressure of the main relief valve and
> an oil pressure control means for outputting a current to the electromagnetic relief valve to vary the set pressure of the main relief valve, thereby controlling the pressure of the oil supplied by the pump, for the purpose of conserving energy needed to drive the pump.

The Examiner takes Official Notice that:

> a variable displacement pump delivering pressurized oil to a hydraulic motor at a pressure regulated to be equal or lower than a set pressure, that the set pressure is a predetermined pressure above a load pressure of the motor, for the purpose of having sufficient pressure to drive the motor without wasting energy.

The Examiner opines that it would be obvious to an artisan to include the aforementioned features of Dantlgraber in a modified Ikebe *et al.* device,

> thereby controlling the pressure of the oil supplied by the pump as part of the supplying means of Ikebe *et al.*, as taught by Dantlgraber, for the purpose of conserving energy needed to drive the pump; with the set pressure being a predetermined pressure above a load pressure of the motor, for the purpose of having sufficient pressure to drive the motor without wasting energy.

Applicants respectfully traverse this rejection.

Claim 1 is directed to a hydraulic drive apparatus and recites, in pertinent part,

> operation position inputting means for inputting an operation position;

operation-position signal outputting means for generating and outputting an operation position signal depending on the operation position input by the operation position inputting means;

supplying oil pressure detect means for detecting a pressure of the working oil supplied from the working oil supplying means to the working oil control means, and generating and outputting a supplying-oil pressure signal depending on the pressure thus detected;

a main relief valve for regulating a pressure of the working oil supplied from the working oil supplying means to the working oil control means to be equal to or lower than a set pressure;

an electromagnetic relief valve for varying the set pressure of the main relief valve by varying a set pressure thereof; and

oil pressure control means for receiving the supplying-oil pressure signal output from the supplying oil detect means and the drive oil pressure signal output from the drive oil pressure detecting means, and outputting a current to the electromagnetic relief valve to vary the set pressure of the electromagnetic relief valve and thus the set pressure of the main relief valve, thereby controlling the pressure of the working oil supplied from the working oil supplying means to be higher, by a predetermined pressure, than the pressure of the working oil for driving and rotating the drive rotary member.

Ikebe *et al.* does not disclose each and every element of the present invention. Ikebe *et al.* discloses a control system for an electrohydraulic motor wherein the gain of the motor is adjusted in accordance with the torque load imposed upon the motor, so as to maintain a constant total system gain. Ikebe *et al.* specifically discloses a pressurized oil source 112, which supplies oil to a hydraulic motor 111, via a spool 102 enclosed within a sleeve 106, the combination of the spool 102 and the sleeve 106 serving as a rotary pilot valve. The position of the spool 102 within the sleeve 106 is controlled by a electric pulse motor 101. Rotation of the electric pulse motor 101 is controlled by a pulse motor drive circuit 407, which receives input commands from a pulse train converter 402. The pulse train converter 402 receives an input signal from a numerical control unit 401. In steady state operation, the output signal F of the numerical control unit 401 equals the output signal f of the pulse train converter 402. Consequently, Ikebe *et al.* teaches a control system for an electrohydraulic motor that modifies the gain factor K1 of the pulse train converter 402 during transient operation such that the total gain K of the control system is held constant.

The Examiner admits that Ikebe *et al.* fails to disclose each and every element of Applicants' invention. More specifically, the Examiner admits that Ikebe *et al.* does not disclose the main relief valve, the electromagnetic relief valve and the oil pressure control means.

Applicants respectfully disagree with the Examiner's contention that the numerical control unit 401 corresponds to the operational position inputting means of the present invention. The Applicants' specification discloses a preferred embodiment of the operation position inputting means 21 to be a lever, the position of which is selected by an operator (page 49, lines 2 and 3). The function of the lever is to allow an operator to control the hydraulic motor 43 (page 51, lines 8-10). The numerical control unit 401 of Ikebe *et al.* is a computer which produces a command pulse train of frequency F. Applicants submit that it is readily apparent that a manually operated lever does not correspond to a computer which produces a pulsed signal, as the two elements are different structures that perform different functions.

Applicants further respectfully disagree with the Examiner's contention that the pulse train converter 402 corresponds to the operational position outputting means of the present invention. The specification discloses a preferred embodiment of the operational position outputting means 22 to be an electrical circuit which senses the physical position of the operation lever 21 and outputs an electrical signal 31 corresponding to that position (page 49, lines 4-7 and Fig. 1). The signal 31 is an input to the drive signal output circuit 23A and the supplying oil quantity signal output circuit 23C (see Fig. 1). The pulse train converter 402 of Ikebe *et al.* is a device comprising a reversible counter 403, a variable frequency oscillator 404 and a gate 405. The pulse train converter 402 takes an input signal F from the numerical control unit 401, and outputs a signal f to a pulse motor drive circuit 407. Although the operational position outputting means 22 of the present invention and the pulse train converter 402 of Ikebe *et al.* perform substantially the function of providing an electrical signal to a motor drive control circuit, the input to the pulse train converter (pulse train signal F) is not equivalent to the input to the operational position outputting means (physical position of an operating lever).

Still further, Applicants respectfully disagree with the Examiner's contention that one of the pressure detectors 116, 117 corresponds to the supplying oil pressure detect means recited in Applicants' claim 1. As recited in claim 1, the supplying oil pressure detect means

detects "a pressure of the working oil supplied from the working oil supplying means to the working oil control means", indicating detection of a pressure upstream of the working oil control means (namely, upstream of the directional control valve 25, as measured by pressure gage 49). The signal 35 from the pressure gage 49 (see Fig. 1) of the present invention is an input to the oil pressure control circuit 23B, where, as described above, the signal 35 is used to calculate the output signal 36, sent to the electromagnetic relief valve 46. The pressure detectors 116, 117 of Ikebe *et al.* detect pressure downstream of the rotary pilot valve 102, 106. The difference between the pressure measurements of the pressure detectors 116, 117 is used by feedback loop 414 to control the gain K1 of the pulse train converter (Ikebe *et al.*, column 4, lines 28-30). Therefore, one of the pressure detectors 116, 117 of Ikebe et al. does not make pressure measurements at a location in the system which corresponds to the location of measurements made by pressure gage 49 of the present invention. Accordingly, one of the pressure detectors 116, 117 of Ikebe *et al.* is not equivalent to the supplying oil pressure detect means of the present invention.

In summary, Applicants submit that Ikebe *et al.* fails to disclose not only the main relief valve, electromagnetic relief valve and oil pressure control means of the present invention, as admitted by the Examiner, but also the operation position inputting means, the operation position outputting means and the supplying oil pressure detect means of the present invention. Accordingly, there is no objective teaching in Ikebe *et al.* that would enable one of ordinary skill in the art to modify the invention of Ikebe *et al.* in a manner that would render the present invention obvious under 35 U.S.C. § 103(a).

Dantlgraber does not disclose each and every element of the present invention. Dantlgraber discloses a system capable of controlling a variable displacement pump used to supply oil to hydraulic devices. The system is capable of controlling the pump over separate high and low pressure ranges. More particularly, Dantlgraber discloses a variable displacement pump 1, a first pressure control valve 8, a second pressure control valve 30, a pressure transducing valve 25 and a pressure relief valve 20. The two pressure control valves 8 and 30 operate to control the output pressure of the pump 1, with the control valve 30 effecting control in a lower

pressure range and the control valve 8 effecting control in a higher pressure range. The relief valve 20 operates to select which control valve is operational.

Dantlgraber fails to disclose an electromagnetic relief valve for varying the set pressure of the main relief valve and an oil pressure control means for outputting a current to the electromagnetic relief valve to vary the set pressure of the main relief valve, thereby controlling the pressure of the oil supplied by the pump. On the contrary, there is no teaching in the disclosure of Dantlgraber that the relief valve 20 is electromagnetic, nor even that its set pressure is adjustable, manually or electrically. Dantlgraber also does not disclose or suggest an electronic control system. The invention of Dantlgraber is purely mechanical, with no electronic components suitable for either outputting an electric current or reacting to such an output. Dantlgraber fails to disclose the electromagnetic relief valve and the oil pressure control means of the Applicants' invention, as asserted by the Examiner. Dantlgraber fails to disclose numerous other elements of the present invention, including, for example, the supplying oil pressure detect means, the rotation control means and the operation position inputting means. Accordingly, there is no objective teaching in Dantlgraber that would enable one of ordinary skill in the art to modify the invention of Dantlgraber in a manner that would render the present invention obvious under 35 U.S.C. § 103(a).

There is no objective teaching in Ikebe *et al.* or Dantlgraber, nor is there knowledge generally available to one of ordinary skill in the art, that would lead the artisan to combine the electrohydraulic control system of Ikebe *et al.* with the mechanical hydraulic pump pressure control system of Dantlgraber. Accordingly, the Ikebe *et al.* and Dantlgraber references are not properly combinable under 35 U.S.C. § 103(a) to render the present invention obvious.

Even if Ikebe *et al.* and Dantlgraber were combined, the combination does not render the present invention obvious. More specifically, the combination of Ikebe *et al.* and Dantlgraber fails to disclose at least an electromagnetic relief valve, oil pressure control means, supplying oil pressure detection means, operation position inputting means and operation position outputting means. As Ikebe *et al.* combined with Dantlgraber fails to teach or suggest all of the elements of claim 1 of the Applicants' invention, it is respectfully submitted that a *prima facie* case for obviousness has not been established with respect to claim 1 and also with

respect to claim 3 which depends directly from claim 1. Accordingly, it is requested that the rejection of claims 1 and 3 under 35 U.S.C. § 103(a) be withdrawn.

Allowable Subject Matter

Applicants acknowledge with appreciation that the Examiner has determined that claims 2, 4 and 5 would be allowable if rewritten to overcome the rejection under 35 U.S.C. § 112, first and second paragraphs, and to include all of the limitations of the base claim and any intervening claims. In accordance with the Examiner's comments, claims 2 and 4 have been rewritten in independent form. Claim 5 depends from claim 4, and has not been amended. Accordingly, in view of the foregoing amendment and Applicants' traverse of the rejection under 35 U.S.C. § 112, first paragraph, Applicants respectfully submit that claims 2, 4 and 5 are in condition for allowance.

CONCLUSION

In view of the foregoing amendment and remarks, Applicants respectfully submit that the present application, including claims 1-5, is in condition for allowance, and such action is respectfully requested.

Respectfully submitted,

HARUO KODAMA, *ET AL.*

August 15, 2002
(Date)

By: Richard A. Woldin

RICHARD A. WOLDIN
Registration No. 39,879
AKIN, GUMP, STRAUSS, HAUER & FELD, L.L.P.
One Commerce Square
2005 Market Street - Suite 2200
Philadelphia, PA 19103
Telephone: 215-965-1200
Direct Dial: 215-965-1296
Facsimile: 215-965-1210
E-Mail: rwoldin@akingump.com

RAW/KBG/lcd

MARKED-UP VERSION OF CLAIMS

1. (Amended) A hydraulic drive apparatus for driving and rotating a drive rotary member in accordance with an operation position input from operation position inputting means, the apparatus comprising:

[a] the drive rotary member driven and rotated by hydraulic pressure;

working oil supplying means for supplying working oil to drive and rotate the drive rotary member;

rotation control means for controlling a quantity of the working oil supplied from the working oil supplying means to the drive rotary member so that the drive rotary member is driven and rotated as desired, the rotation control means including:

operation position inputting means for inputting an operation position;

operation-position signal outputting means for generating and outputting an operation position signal depending on the operation position input by the operation position inputting means;

drive signal outputting means for computing and converting the operation position signal output from the operation-position signal outputting means into a drive signal output therefrom;

an electric motor driven and rotated at a speed and a quantity of rotation depending on the drive signal output from the drive signal outputting means; and

working oil control means for controlling a quantity of the working oil supplied from the working oil supplying means to the drive rotary member so that the drive rotary member is driven and rotated depending on rotation of the electric motor;

drive oil pressure detecting means for detecting a pressure of the working oil for driving and rotating the drive rotary member, and generating and outputting a drive oil pressure signal depending on the pressure thus detected;

supplying oil pressure detect means for detecting a pressure of the working oil supplied from the working oil supplying means to the working oil control means, and generating and outputting a supplying-oil pressure signal depending on the pressure thus detected;

a main relief valve for regulating a pressure of the working oil supplied from the working oil supplying means to the working oil control means to be equal to or lower than a set pressure;

an electromagnetic relief valve for varying the set pressure of the main relief valve by varying a set pressure thereof; and

oil pressure control means for receiving the supplying-oil pressure signal output from the supplying oil detect means and the drive oil pressure signal output from the drive oil pressure detecting means, and outputting a current to the electromagnetic relief valve to vary the set pressure of the electromagnetic relief valve and thus the set pressure of the main relief valve, thereby controlling the pressure of the working oil supplied from the working oil supplying means to be higher, by a predetermined pressure, than the pressure of the working oil for driving and rotating the drive rotary member.

2. (Amended) [A hydraulic drive apparatus according to claim 1, further comprising:] A hydraulic drive apparatus for driving and rotating a drive rotary member in accordance with an operation position input from operation position inputting means, the apparatus comprising:

the drive rotary member driven and rotated by hydraulic pressure;

working oil supplying means for supplying working oil to drive and rotate the drive rotary member;

rotation control means for controlling a quantity of the working oil supplied from the working oil supplying means to the drive rotary member so that the drive rotary member is driven and rotated as desired, the rotation control means including:

operation position inputting means for inputting an operation position;

operation-position signal outputting means for generating and outputting an operation position signal depending on the operation position input by the operation position inputting means;

drive signal outputting means for computing and converting the operation position signal output from the operation-position signal outputting means into a drive signal output therefrom;

an electric motor driven and rotated at a speed and a quantity of rotation depending on the drive signal output from the drive signal outputting means; and

working oil control means for controlling a quantity of the working oil supplied from the working oil supplying means to the drive rotary member so that the drive rotary member is driven and rotated depending on rotation of the electric motor;

drive oil pressure detecting means for detecting a pressure of the working oil for driving and rotating the drive rotary member, and generating and outputting a drive oil pressure signal depending on the pressure thus detected;

supplying oil pressure detect means for detecting a pressure of the working oil supplied from the working oil supplying means to the working oil control means, and generating and outputting a supplying-oil pressure signal depending on the pressure thus detected;

a main relief valve for regulating a pressure of the working oil supplied from the working oil supplying means to the working oil control means to be equal to or lower than a set pressure;

an electromagnetic relief valve for varying the set pressure of the main relief valve by varying a set pressure thereof;

oil pressure control means for receiving the supplying-oil pressure signal output from the supplying oil detect means and the drive oil pressure signal output from the drive oil pressure detecting means, and outputting a current to the electromagnetic relief valve to vary the set pressure of the electromagnetic relief valve and thus the set pressure of the main relief valve, thereby controlling the pressure of the working oil supplied from the working oil supplying means to be higher, by a predetermined pressure, than the pressure of the working oil for driving and rotating the drive rotary member;

supplying oil quantity control means for controlling a quantity of the working oil that the working oil supplying means supplies; and

supplying oil quantity signal outputting means for receiving the operation position signal output from the operation-position signal outputting means, generating a supplying oil quantity signal from the [input] operation position signal, and outputting the supplying oil quantity signal to the supplying oil quantity control means, thereby controlling the

quantity of the working oil supplied to the supplying oil quantity control means by the working oil supplying means.

4. (Amended) [A hydraulic drive apparatus according to claim 1] A hydraulic drive apparatus for driving and rotating a drive rotary member in accordance with an operation position input from operation position inputting means, the apparatus comprising:

the drive rotary member driven and rotated by hydraulic pressure;

working oil supplying means for supplying working oil to drive and rotate the drive rotary member;

rotation control means for controlling a quantity of the working oil supplied from the working oil supplying means to the drive rotary member so that the drive rotary member is driven and rotated as desired, the rotation control means including:

operation position inputting means for inputting an operation position;

operation-position signal outputting means for generating and outputting an operation position signal depending on the operation position input by the operation position inputting means;

drive signal outputting means for computing and converting the operation position signal output from the operation-position signal outputting means into a drive signal output therefrom;

an electric motor driven and rotated at a speed and a quantity of rotation depending on the drive signal output from the drive signal outputting means; and

working oil control means for controlling a quantity of the working oil supplied from the working oil supplying means to the drive rotary member so that the drive rotary member is driven and rotated depending on rotation of the electric motor;

drive oil pressure detecting means for detecting a pressure of the working oil for driving and rotating the drive rotary member, and generating and outputting a drive oil pressure signal depending on the pressure thus detected;

supplying oil pressure detect means for detecting a pressure of the working oil supplied from the working oil supplying means to the working oil control means, and generating and outputting a supplying-oil pressure signal depending on the pressure thus detected;

a main relief valve for regulating a pressure of the working oil supplied from the working oil supplying means to the working oil control means to be equal to or lower than a set pressure;

an electromagnetic relief valve for varying the set pressure of the main relief valve by varying a set pressure thereof; and

oil pressure control means for receiving the supplying-oil pressure signal output from the supplying oil detect means and the drive oil pressure signal output from the drive oil pressure detecting means, and outputting a current to the electromagnetic relief valve to vary the set pressure of the electromagnetic relief valve and thus the set pressure of the main relief valve, thereby controlling the pressure of the working oil supplied from the working oil supplying means to be higher, by a predetermined pressure, than the pressure of the working oil for driving and rotating the drive rotary member,

wherein when the pressure of the working oil detected by the drive oil pressure detecting means is equal to or higher than a predetermined pressure, the oil pressure control means feeds current of a predetermined value to the electromagnetic relief valve.